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**Rural Institutions and Natural Resource Exploitation:  
the Case of Irish Commonage**

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***Selected Paper prepared for presentation at the American Agricultural Economics  
Association Annual Meeting, Denver, Colorado, August 1-4, 2004***

**Abstract**

This paper uses an original micro data set, to investigate, the role of a specific rural institutions in determining the grazing regime over a common property resource: Irish Commonage. It is found that the level of communal activity of the shareholders, mismanagement, and the degree of participation or democratic involvement in decision making processes of the committee representing shareholders and the number of people actively using the shares are key variables in explaining grazing impact on the common property resource.

**1. Introduction**

Open access regimes have long been considered in legal doctrine as involving no limits on who is authorized to use a resource since no one has legal right to exclude anyone from using it (Bromley, 1991). This is the “tragedy of the commons” described by Hardin in his celebrated paper in 1968 (Hardin, 1968). If such a resource generates valuable products, then one can expect that the lack of rules

regarding authorized use will lead to misuse and over-consumption (Ostrom, 2000). Common pool resources have two attributes of importance for economics activities: (a) it is costly to exclude individuals from using the good either through physical barriers or legal instruments; (b) the benefits consumed by one individual subtract from the benefits available to others (Adger and Luttrell, 2000; Ostrom 2000). Consequently these resources are subject to problems such as congestion, overuse and potential destruction unless some form of common property management regime is enforced. Indeed common property resources are seen to be inefficient by economists as they provide incentives which can lead to socially sub-optimal outcomes. Specifically there is evidence of a variety of issues such as rent dissipation, high transactions costs, high enforcement costs and low productivity.

However, a dominant theme in the environmental and resource economics literature is the perception that private property rights are more likely to be consistent with the conservation of natural resources than common property rights. This perception was modified by the recognition that it is the open access nature of many common property regimes, rather than the communal nature of such rights which affects wise resource management (Runge, 1986, Larson and Bromley, 1990). In the same vein, Beaumont and Walker (1996) showed that conditions exist under which private property does not lead to the best environmental outcome. Furthermore, the difficulty in many developing countries of establishing private property rights over natural resources has led social scientists to devote increasing attention to the possibility of community-based management. From this strand of the literature the notion emerged that common or communal property rights may actually encourage a higher level of

conservation. This has been related to the idea that local communities in these countries have a more direct dependence on the ecological services provided by natural resources, and hence a stronger interest in their conservation. (see, for instance, Runge, 1986, Ostrom, 1990, Baland and Platteau, 1997, 1998). This particular theme is highly relevant in the context of commonage in Ireland in which farming communities collectively manage the resource as common property as opposed to open access. This paper will investigate the role of these specific rural institutions in determining the grazing regime over a common property resource: The Irish Commonage.

## **2. Background to Irish commonage**

Commonage represents an example of an institution that is caught between the history of a traditional society and a modern “efficient” society. Commonage is mainly peripheral land on which two or more farmers have grazing rights (Lyll 2000). However, it represents an important form of tenure and a large number of Irish farmers are engaged in commonage across the west of Ireland. There are 11,837 farms in the Republic of Ireland using 426,124 hectares of commonage (CSO Central Statistics Office 2002) and the majority of these farms are under 30 ha. Nearly half of all commonages occur in Connacht (5,379) with 2,050 in Galway and 2,416 in Mayo and in these two counties, over 75% of the farms using commonage are below 30 ha in size (CSO Central Statistics Office 2002). Historically, up to the mid-1800s, commonage was used for potato cultivation, livestock production and hunting although today it is almost always grazed. The outstanding recreation interest associated with commonage has also given rise to increased demands for a wide range of recreation activities including hill walking, mountaineering, orienteering, mountain

biking, and caravan/camping/picnic sites. These recreational and leisure pursuits now make a significant contribution to the rural economy.

### *Ecological importance*

Commonages are found mostly on upland areas of poor land quality but may also be found on coastal lowlands and in peat bog areas. Commonage is widely recognized as being of exceptional conservation value and recreation appeal. Many commonages contain machairs which are unique ecosystems confined, in the northern hemisphere, primarily to west and north-west coasts of Ireland and Scotland (Bleasdale and Sheehy-Skeffington, 1995). It is estimated that a total of only 25,000ha (approx.) of machair exist north of the equator, of which about 10,000ha occurs in Ireland. The latter are found, in the main, along the coast between Counties Galway and Donegal. The development of machair, which is listed as a priority habitat in Ireland, is strongly associated with agriculture and human activity. Machairs are priority habitats because of the high plant species richness which contain elements of calcareous grassland and sand dune plant communities. Ornithological interest is also high on commonage land and the populations of certain species represent a high proportion of the European Union breeding populations. The outstanding recreation appeal of commonage has also given rise to increased demands for a wide range of recreation activities including hill-walking, mountaineering, mountain biking (upland areas), and horse riding in recent years.

### **3. Study sites**

This study is located in Connemara, County Galway. Connemara lies to the west of Lough Corrib and comprises 192,144 ha and is situated in County Galway. The

population of what is essentially a rural community numbers approximately 30,000 with a density of one person per 6.5 ha (Scannell, 1984). Connemara's Atlantic climate gives rise to high levels of precipitation particularly in mountainous regions where 2,500 mm of rainfall per annum is typical (Webb and Scannell, 1983). The landscape of southern Connemara is low-lying and composed of large expanses of western blanket bog. The narrow coastal strip (Cois Fharraige) has the highest human population density. In Northern Connemara the land rises steeply and this area includes the Twelve Bens and Maumturk mountains. Connemara is composed largely of siliceous palaeozoic rocks (Leake *et al.*, 1981), the hills and uplands being primarily metamorphic and sedimentary in geological origin. The main soil associations of Connemara are: low level blanket peat, lithosols with outcropping rock, shallow brown earths and peaty podzols (Scannell, 1984). The soils of the upland grazing areas are generally of low productivity and are not suited to intensive cattle and sheep production. The vegetation of upland Connemara is quite uniform, despite the underlying geology because the rocks are typically base-poor and do not lend themselves to good soil formation. More striking differences in vegetation types occur where these are subjected to contrasting management practices and grazing intensities. The soils on the calcareous substrates are relatively nutrient-rich. And support greater species diversity.

#### *Background to Irish commonage Institutions*

Despite the uninterrupted existence of commonage for hundreds of years, the boundaries and shareholders of much contemporary commonage were created by the Irish Land Commission during the period of Land Reform from the end of the 19<sup>th</sup> Century until the 1980s. One of the aims of the The Land Commission and the

Congested Districts Board (CDB) in Ireland (set up as a result of the Land Acts of the late 19<sup>th</sup> Century - 1881 and 1891) was to ensure for the fair division of land through rent-fixing and tenant purchase; the enlargement of small uneconomic holdings and the reduction of farm fragmentation (Lafferty *et al.* 1999). Tenants in areas of the West of Ireland with very small holdings were given commonage grazing rights as a form of land distribution to ensure that none remained economically disadvantaged. Commonage is thus a product of agrarian reform, its evolution as a feature of the West of Ireland's landscape and society is rooted in earlier systems of land tenure, where collective agriculture and the utilisation of common resources was common practice (Lafferty *et al.* 1999).

Legally, commonage can be defined as a Common-Pool Resource which may or may not be classified as a Common Property Regime. In Ireland, under Common Law, land held in commonage is seen as a *Tenancy in Common* whereby each tenant holds a distinct, separate, and *undivided* share in the property although no one person owns any particular part of the property. Importantly, each shareholder within a commonage has an equal right to possession of the land held under co-ownership. Therefore no tenant has the right to exclude his/her co-tenants from possession of any part of the land or to prevent them from taking a share in the rents and profits of the land. A key feature of open-access regimes is that no one has a legal right to exclude anyone from using a resource (Bromley, 1991). In this sense in the absence of any collective management of the resource, where no shareholder has the legal right to exclude other shareholders from extracting a share of rents commonage can be defined as an open access resource.

Common property in contrast to open access involves members of a clearly demarked group which have the legal right to exclude non-members of that group from using a resource (Lyall, 2000). Bromley (1991) suggests that common property is in essence private property for the group of co-owners and in that sense it is a group decision regarding who shall be excluded. Individuals have rights and obligations in situations of common (non-individual) property. According to Ostrom (2000), “common property” regimes typically involve participants who are proprietors, who have the right of access, right of withdrawal (extraction), right of management and right of exclusion over a resource.

Historically the development of informal local institutions has indeed taken place in the west of Ireland. The *rundale* system of land management represents an early informal institution whereby villagers complied with village laws as a means of regulating communal grazing, turbary and foreshore rights, and as an equitable arrangement of landholding (O’Loughlin, 1987; Whelan, 1997). Land was divided into units of varying quality and periodically redistributed among all tenants in common so as to ensure that none was disadvantaged. This process bears a striking resemblance to both Irish Gravelkind and the much larger land structuring of ballybetaghs and tates. Land law and the physical pattern of Gaelic ‘tenure’ thus aimed to ensure for the sustenance of smallholder kin groups. Under such systems there is evidence to suggest that commonage shareholders developed informal local institutions with one another and jointly developed and implemented grazing management regimes with agreed stocking levels and efficient output. In circumstances of joint management, commonage systems can best be described as common property as opposed to open access regimes. Examples of these informal



systems of management still exist under commonage. These informal institutions are thought to favour the conservation of commonage habitat and associated plant and invertebrate diversity by regulating livestock grazing intensity. However, the precise role of commonage management in relation to sustainable management of the resource remains unclear.

#### **4. Methods**

Personal interviews were conducted with owner-operators at the owner's property in order to collect management and cost benefit data for each of the commonages. In general each interview took approximately 45 minutes and followed a set format. Each survey provided detailed data on revenue and cost summaries, use of technology, labour and costs of farm operations, particularly grazing and livestock activities. Current and past land management practices were also documented. In addition information on grazing rights and the movement of livestock was obtained where, for example, livestock are relocated between different seasonal pastures. The questionnaire was piloted over three weeks and this assisted with the design of the survey.

#### **5. Empirical Analysis**

In order to test the impact of cooperation among the shareholders and the intensity of resource use on the number of people actively on the common property resource two models are provided. The first model represents an analysis based on the farmer's view with respect to how commonage is managed and exploited. Here the dependent variable is discrete and represents the farmers' perception of the impact of commonage management on land degradation (i.e. overgrazing). The second model

instead adopts an "objective" continuous variable (observed stocking rate). The discrete variable is 1 when the farmers define the state of the common property as damaged and 0 when is not. The following table shows the results from the Probit regression:

Index function for probability

Variable	Coeff.	Standard err	t stat	Significance
Constant	.7075143315	1.7431958	.406	.6848
Knowledge	-.2495811480E-01	.12495370E-01	-1.997	.0458
Cooperation	-10.31746419	153467.98	.000	.9999
Participation	.1475982617	.62900419E-01	2.347	.0189
Status	1.755817931	1.1621049	1.511	.1308
Age	-.2000462499E-01	.24890642E-01	-.804	.4216
Education	-.4187558375	.40778003	-1.027	.3045
Income	1.238674800	.71209986	1.739	.0820

The analysis shows that indigenous knowledge (knowledge) and the number of people actively using the shares are both significant. The former is negatively related to the damage of the common property resource. The latter instead is positively correlated. The variable cooperation, although not significant is negatively related to damage. This implies that when respondents' exhibit cooperating behavior, for instance in joint management of livestock or fencing the area, then damage is not likely to be present. Among the socio characteristics of households income exhibits a positive and significant coefficient. Education and age of the respondent are negatively related. The status (male) is positively correlated to damage. The dependent variable is built on the farmers' view of the state of the natural resource. The following table reports the regression results when an objective dependent variable is taken into account.

Variable	Coeffs	Standard err	t stat	Significance
Constant	10.079	.14205539	70.953	.0000
Knowledge	-.19424E-02	.13828445E-02	-1.405	.1877
Cooperation	-.12799	.68469420E-01	-1.869	.0884
Participation	.2001E-02	.92759198E-02	.216	.8331
Income	-.3346E-05	.42354927E-05	-.790	.4461
Education	-.47999E-01	.75568477E-01	-.635	.5383

In the second regression model, based on a standard OLS, the cooperation variable is again negatively related to overexploitation and is statistically significant. The results of the Probit analysis are confirmed. The exception is the income variable that in this model displays a negative sign on a not significant coefficient. Education and indigenous knowledge were found to be negatively related to damage.

## Conclusions

This paper employed an original micro data set in order to evaluate the causal relationship between the exploitation of a common property resource (Irish commonage) and the level of participation, cooperation and indigenous knowledge. Estimates were controlled for a set of socio economic variables (e.g., income or status of the respondent). It comprises an assessment of the level of activity based on communal management by shareholders (farmers which collectively manage a given commonage) in relation to exploitation of commonage. The analysis indicates that when commonage is characterized by a certain level of collective activity and participation in decision making, then the incidence of overgrazing is less. This result gives an important contribution to the ongoing debate on non degrading property regimes. In addition it identifies conditions where a common property regime could lead to circumstances in which common property resources lead to overexploitation and degradation. From a broader policy perspective this modelling framework may be

relevant to other farm systems supported by the CAP which involve informal institutions run by farmers and which are linked to the analysis of potential agri-environmental policy change. The approach will also make an important contribution to the debate over the conditions which underlie Sustainable Common Property Resource Management.

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